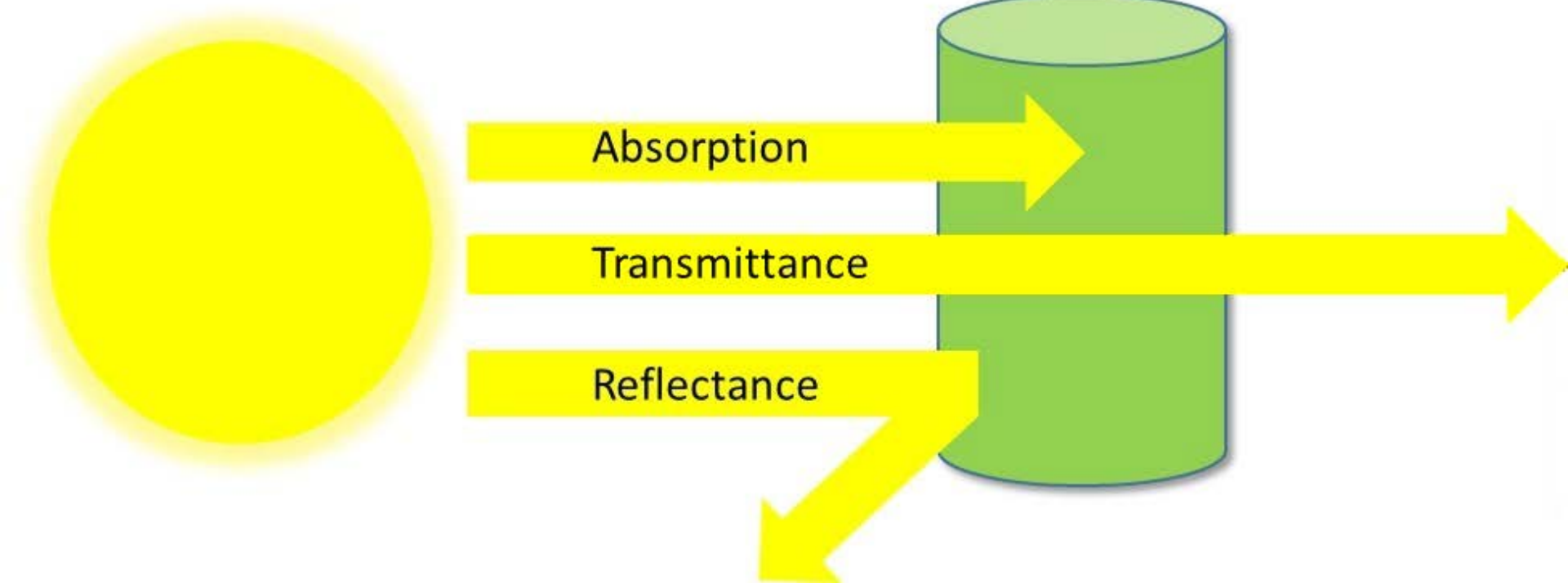


Using the spectrophotometer

Light Source

Object



SPECTRONIC® EDUCATOR™

1. Turn On—Wait 15 min.
2. Set Wavelength
3. Insert Blank
4. Set Full Scale
5. Insert Sample
6. Read %T or A

00

% Transmittance

Absorbance

Set to Abs

Thermo Spectronic

Sample in here



Adjust wavelength



On/off



Zero adjust with blank

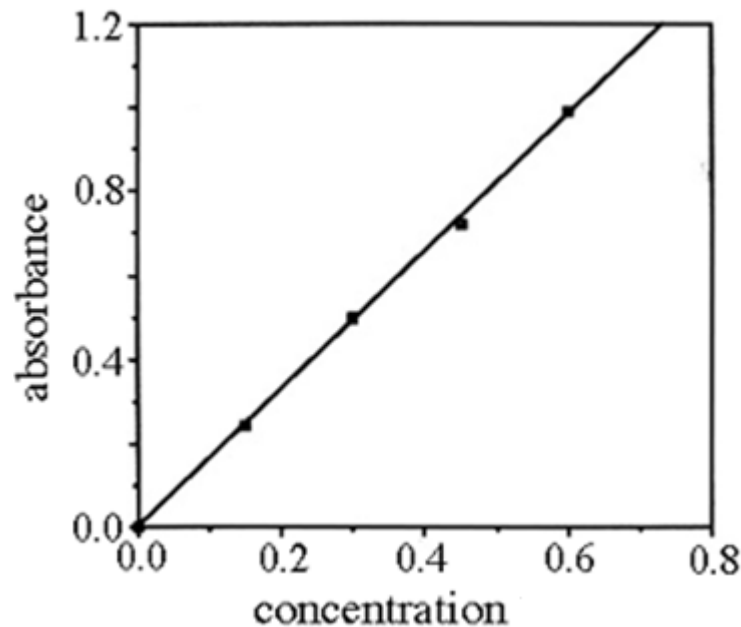




Beer-Lambert law (Beer's law):

Linear relationship between absorbance and concentration of sample.

$$\text{Beer's law: } A = \epsilon lc$$



A = absorbance

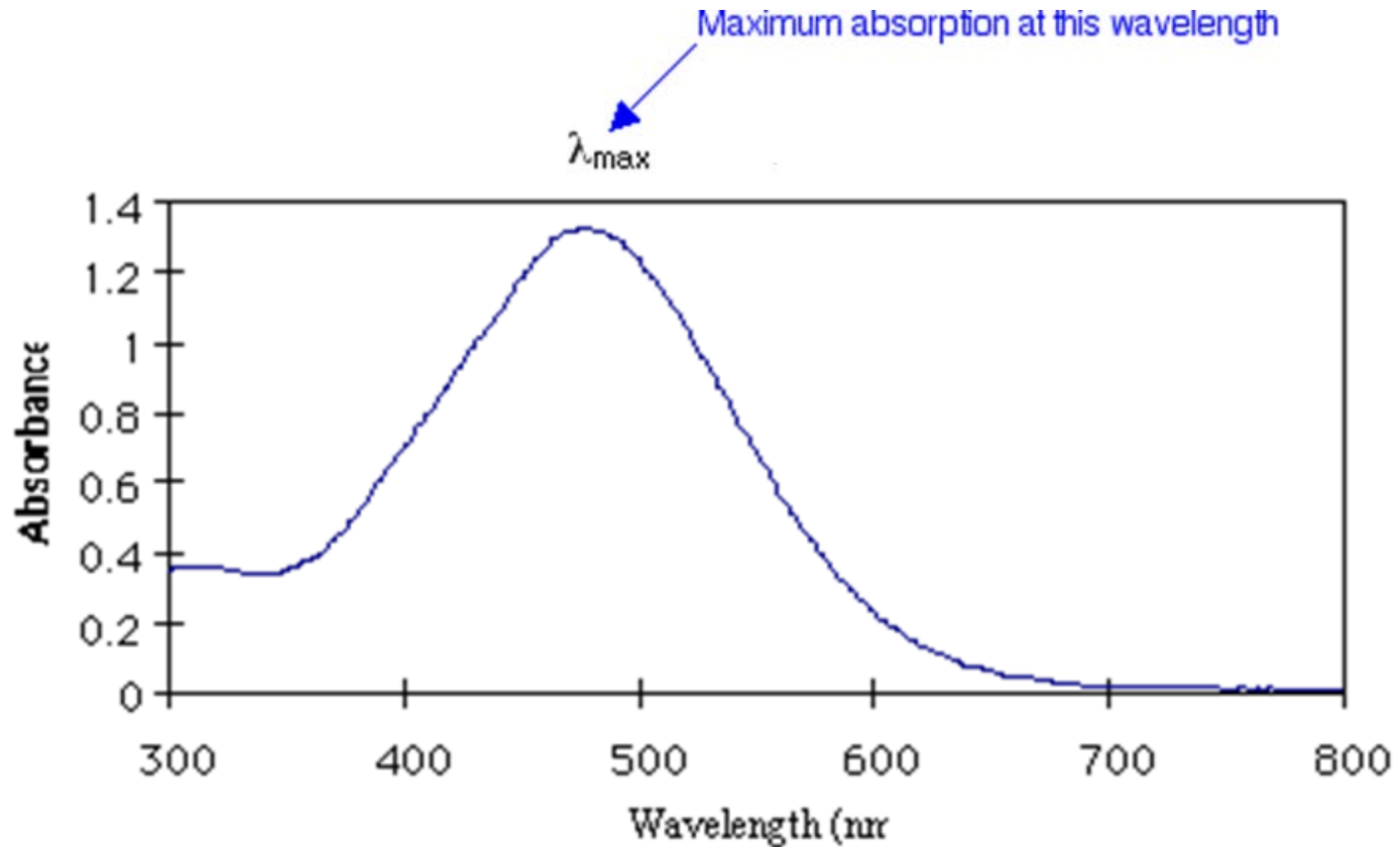
ϵ = absorptivity

l = pathlength

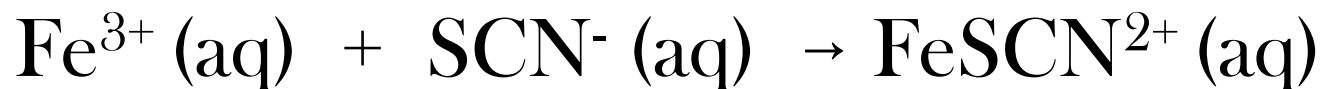
c = concentration

(You don't have to do this plot – it just shows how Absorbance and conc are related)

Plot: Absorption vrs Wavelength



page28 steps 1-5 - already done



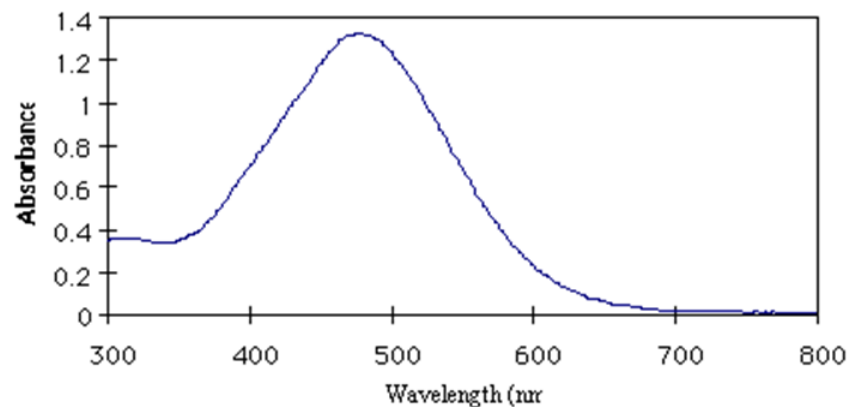
Take ~10 mL of the FeSCN^{2+} solution

Measure Abs at different λ from 400 - 700 nm

Tabulate data

Graph at home (graph paper) (Q1)

Q2. Find λ_{\max} from graph



Q3. Find $[\text{FeSCN}^{2+}]$ after mixing. Use:

$[\text{Fe}^{3+}]$ (before mixing) = 0.0004 M

$[\text{SCN}^-]$ (before mixing) 1.0 g KSCN in 15.0 mL water

Remember, mixing equal vols will $\frac{1}{2}$ molarity

Q4. From graph, find A at λ_{\max}

Measure l with ruler

Use c from Q3

Calculate ϵ ----- Beer's law: $A = \epsilon lc$

